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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,718	03/09/2001	Ravi Narasimhan	47586-P063US-10026081	9004
29053	7590	02/09/2005	EXAMINER	
DALLAS OFFICE OF FULBRIGHT & JAWORSKI L.L.P.			GELIN, JEAN ALLAND	
2200 ROSS AVENUE			ART UNIT	
SUITE 2800			PAPER NUMBER	
DALLAS, TX 75201-2784			2681	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/803,718

**Applicant(s)**

NARASIMHAN ET AL.

**Examiner**

Jean A Gelin

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/02/2002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 21, and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 21, and 39, the word "substantially" renders the claims indefinite. Appropriate correction is required.

The term "substantially" is often used in conjunction with another term to describe a particular characteristic of the claimed invention. It is a broad term. In *re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). The court held that the limitation "to substantially increase the efficiency of the compound as a copper extractant" was definite in view of the general guidelines contained in the specification. In *re Mattison*, 509 F.2d 563, 184 USPQ 484 (CCPA 1975). The court held that the limitation "which produces substantially equal E and H plane illumination patterns" was definite because one of ordinary skill in the art would know what was meant by "substantially equal." *Andrew Corp. v. Gabriel Electronics*, 847 F.2d 819, 6 USPQ2d 2010 (Fed. Cir. 1988).

3. The following rejection is made in view of the second paragraph of 35 U.S.C. 112.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 53-55 and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al. (US 5,890,067).

Regarding claim 53, Chang teaches a method for mobile data communication (col. 3, lines 52-54) comprising; transmitting from a base station to mobile stations in a time division access scheme using multiple beams (col. 3, lines 55-63, col. 4, lines 46-66); and switching, over time, a forward link time slot assignment of said time division access scheme of each of a plurality of subscriber units (i.e., dynamically reconfigure the zones to track the mobile stations as they move between beam-spots, col. 4, lines 46-67, col. 7, lines 38-63).

Regarding claim 54, Chang teaches wherein said switching a forward link time slot assignment comprises: transmitting to said plurality of subscriber units each within a different time slot of said time division access scheme (i.e., in a TDMA system assigning time slots to mobile units col. 3, lines 55-63); and varying from transmission frame to transmission frame in a pseudo random sequence the time slot within which transmission is made to said subscribers (i.e., adjusting or varying beam-spots corresponding to channels are activated when mobile units enter the beam-spot and

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deactivated when the mobile units exit the beam-spot, col. 3, line 64 to col. 4, line 4, col. 4, lines 46-64).

Regarding claim 55, Chang teaches varying the carrier frequency from transmission frame to transmission frame (col. 4, lines 54-63).

Regarding claim 59, Chang teaches wherein the forward link time slot assignment is switched at a rate less than an interleaving frame rate (base assigns time slot to mobile as the mobile is moving, col. 3, line 55 to col. 4, line 4, col. 4, lines 44-67).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 4, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (5,890,067) in view of Krishnamurthy (US 6,704,557).

Regarding claim 1, Chang teaches a system for providing communications with a plurality of subscriber units (i.e., fig. 3 includes a base having adaptive antenna to transmit forward and receive reverse channel to mobile station in cell 300) comprising: beam forming circuitry (i.e., arranging beam-spots, col. 4, lines 46-50); direction finding circuitry (i.e., keeping track of the mobile, col. 4, lines 48-55); and control circuitry, wherein said control circuitry operates with said direction finding circuitry to determine a combination of subscriber units of said plurality of subscriber units for providing

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substantially isolated communication links, and wherein said control circuitry operates with said beam forming circuitry for use in conducting communications through said substantially isolated communication links (i.e., antennas are spaced from one another, provide channel to mobile stations, generate beam-spots to reduce interference and increase system capacity, col. 5, lines 6-55, col. 7, lines 51-63).

Chang does not specifically teach the implementation of an interference diversity gain scheme for use in conducting communications.

However, the preceding limitation is known in the art of communications. of Krishnamurthy discloses an interference protection system wherein the system provides desired signals to the baseband processing system for synchronous combining of the desired signals to realize spatial diversity gain; the interference protection system achieves spatial diversity gain (col. 11, lines 11-20). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to implement the technique of Krishnamurthy within the system of Chang in order to provide an interference protection system that can prevent jamming signal into a receiver and allows a receiver to operate normally with minimal or no exposure to the jamming signal.

Regarding claim 3, Chang teaches wherein operation of said control circuitry with said direction finding circuitry determines angular separation of subscriber units of said plurality of subscriber units (col. 5, lines 6-27).

Regarding claim 4, Chang teaches wherein said combination of subscriber units comprises a combination of subscriber units in which each subscriber unit of the

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combination has a minimum angular separation with respect to other subscriber units of the combination (i.e., adjusting individual spot size and location, col. 5, lines 17-39).

Regarding claim 19, Chang teaches wherein said beam forming circuitry comprises adaptive beam forming circuitry (col. 5, lines 6-16).

Regarding claim 20, Chang teaches wherein said beam forming circuitry comprises fixed beam forming circuitry (i.e. mobile moves from one beam to another requesting handoff, col. 1, lines 25-44).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (5,890,067) in view of Krishnamurthy (US 6,704,557) further in view of Kim (US 6,393,030).

Regarding claim 2, Chang in view of Kronestedt teaches all the limitations above except wherein said control circuitry operates to determine a data rate for providing desired communication quality with subscriber units.

However, the preceding limitation is known in the art of communications. Kim teaches the transmission rates of the data call is increased in case a traffic load is small, and the transmission rates of the data call is decreased in case the traffic is overloaded (col. 1, line 61 to col. 2, line 2). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to implement the technique of Kim within the system of Chang in view of Krishnamurthy in order that the maximum transmission rate is serviced if a load in a cellular capacity is small, and the transmission rate is lessened if overloaded.

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9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (5,890,067) in view of Krishnamurthy (US 6,704,557) further in view of Lin (US 6,295,279).

Regarding claim 5, Chang in view of Krishnamurthy teaches all the limitations above except wherein operation of said control circuitry with said direction finding circuitry determines a pilot C/I of subscriber units of said plurality of subscriber units.

However, the preceding limitation is known in the art of communications. Lin teaches performing the measurement of carrier to interference at the base station using a test tool integrated with the BS (col. 3, line 57 to col. 4, line 25). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to implement the technique of Lin within the system of Chang in view of Krishnamurthy in order to provide two additional time slots for recording co-channel and adjacent channel interference which can be used to determine the C/I performance.

10. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (5,890,067) in view of Cudak et al. (US 6,253,063).

Regarding claim 60, Chang teaches all the limitation above except wherein a forward link data rate is determined for each subscriber unit by monitoring signal quality of a traffic signal-to-interference ratio.

However, the preceding limitation is known in the art of communications. Cudak teaches the base station selects a final data rate for transmission from base station to a mobile station based on the determined difference level of interference condition (col. 2, line 42 to col. 3, line 23). Therefore, it would have been obvious to one of ordinary skill



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in the art, at the time of the invention, to implement the technique of Cudak within the system of Chang in order to maximize the usage of the communication system capacity when a mobile station makes an initial data rate request for a downlink transmission from a base station.

### ***Allowable Subject Matter***

11. Claims 21-52 are would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

12. Claims 6-18, 56-58, and 61 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Silventoinen et al.	US 6,738,365	05/18/2004
Raitola	US 6,370,128	04/09/2002
Wong et al.	US 6,453,117	09/17/2002
Smith	US 6,002,947	12/14/1999
Lin	US 6,295,279	09/25/2001
Krile	US 6,229,486	05/08/2001
Ritz et al.	US 5,838,673	11/17/1998
Guo et al.	US 6,389,034	05/14/2002

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Vook et al.	US 5,982,327	10/09/1999
Schilling	US 6,327,297	12/04/2001
Mazur et al.	US 6,650,910	11/18/2003
Cudak et al.	US 6,253,063	06/26/2001

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean A Gelin whose telephone number is (703) 305-4847. The examiner can normally be reached on 9:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (703) 306-0003. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGelin  
February 6, 2005

JEAN GELIN  
PRIMARY EXAMINER

